DETAILED ACTION

1. Claims 1-13 are currently pending in the Application.

Response to Arguments

2. Applicant's arguments, see page 2, lines 5-15, filed 04/27/2011, with respect to claims 1-13 have been fully considered and are persuasive. The rejection of claims 1-13 has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,164,915 (Zaki) in view of U.S. Patent Application Publication Number 2005/0060319 (Douglas et al.)

4. As to claims 1, 2 and 8, Zaki teaches a method of hand-off for a mobile terminal from a first access point to a second access point in a wireless local area network (WLAN) **[Title]**, the method comprising: measuring in a mobile terminal signal to noise ratio (SNR) of first RF signals received from the first access point **[Figure 2, step S32, column 2, lines 34-36]**; if the measured SNR of the first RF signals exceeds a first threshold **[Column 3, lines 20-26]**, measuring SNR of RF signals received from a plurality of candidate access points in a roaming candidate list stored on the mobile

terminal; determining from measured SNRs of the candidate access points whether any of the measured SNR exceed a second threshold **[Column 3, lines 17-18; i.e. low SNR threshold]**, and if so, identifying those candidate access points in a new association list; selecting one of the candidate access points in the new association list; and attempting to associate the mobile terminal to the selected candidate access point **[Column 3, lines 50-64]**. But Zaki does not specifically disclose that receiving from the first access point the roaming candidate list identifying the plurality of candidate access points in the WLAN. Douglas teaches a for central planning and distributed control of client roaming and reassociation **[Title]**, whereby If an access point is not configured to support a client with a particular feature vector, it may give the client a roaming list of neighboring APs that are configured to support clients with that feature vector **[Page 1, paragraph 0018]**, and that when the client decides to roam, e.g., because of a weak signal or an overloaded cell, fails to associate with an access point or is disassociated, the client uses the roaming list of access points that was transmitted during the association process for selecting another access point **[Page 3, paragraph 0041]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Douglas in the handover system of Zaki in order to minimize disruptions associated with roaming **[See Douglas, Page 1, paragraph 0020]**.

4. As to claim 3, Zaki further teaches a mobile terminal operable for wireless connection to one or more access points in a wireless local area network (WLAN) **[Figure 1, # 14_{1N} and #s 10_1 and 10_2]**, the device comprising: means for measuring

signal to noise ratio (SNR) of first RF signals received from the first access point **[Figure 2, step S32, column 2, lines 34-36]**; if the measured SNR of the first RF signals exceeds a first threshold **[Column 3, lines 20-26]**, means for measuring SNR of RF signals received from each of a plurality of candidate access points in a roaming candidate list; means for determining from measured SNRs of the candidate access points whether any of the measured SNR exceed a second threshold, and if so, identifying those candidate access points in a new association list; means for selecting one of the candidate access points in the new association list; and means for attempting to associate the mobile device to the selected candidate access point **[Column 3, lines 50-64]**. But Zaki does not specifically disclose that receiving from the first access point the roaming candidate list identifying the plurality of candidate access points in the WLAN. Douglas teaches a for central planning and distributed control of client roaming and reassociation **[Title]**, whereby If an access point is not configured to support a client with a particular feature vector, it may give the client a roaming list of neighboring APs that are configured to support clients with that feature vector **[Page 1, paragraph 0018]**, and that when the client decides to roam, e.g., because of a weak signal or an overloaded cell, fails to associate with an access point or is disassociated, the client uses the roaming list of access points that was transmitted during the association process for selecting another access point **[Page 3, paragraph 0041]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Douglas in the handover system of Zaki in

order to minimize disruptions associated with roaming **[See Douglas, Page 1, paragraph 0020]**.

5. As to claim 4, Zaki teaches a mobile terminal in accordance with claim 3 further comprising: means for associating the mobile terminal to a first access point in the WLAN **[Column 2, lines 31-36]**.

6. As to claim 7, Zaki teaches a mobile terminal for communicating with one or more access points in a wireless local area network (WLAN) **[Figure 1, # 14_{1N} and #s 10_1 and 10_2]**, the device comprising: a processor **[Figure 3, # 24]**; a transceiver coupled to the processor **[Figure 3, # 22]**; an antenna coupled to the transceiver for receiving and transmitting RF signals from and to the one or more access points in the WLAN **(Figure 3, # 20]**; and wherein the processor is operable for: measuring signal to noise ratio (SNR) of first RF signals received from the first access point **[Figure 3, # 24, column 3, lines 52-53]**, if the measured SNR of the first RF signals exceeds a first threshold **[Column 3, lines 20-26]**, measuring SNR of RF signals received from each of a plurality of candidate access points in a roaming candidate list stored in the mobile terminal, determining from measured SNRs of the candidate access points whether any of the measured SNR exceed a second threshold **[Column 3, lines 17-18, i.e. low SNR threshold]**, and if so, identifying those candidate access points in a new association list, selecting one of the candidate access points in the new association list, and attempting to associate the mobile device to the selected candidate access point **[Column 3, lines 50-64]**. But Zaki does not specifically disclose that receiving from the first access point the roaming candidate list identifying the plurality of candidate access

points in the WLAN. Douglas teaches a for central planning and distributed control of client roaming and reassociation **[Title]**, whereby If an access point is not configured to support a client with a particular feature vector, it may give the client a roaming list of neighboring APs that are configured to support clients with that feature vector **[Page 1, paragraph 0018]**, and that when the client decides to roam, e.g., because of a weak signal or an overloaded cell, fails to associate with an access point or is disassociated, the client uses the roaming list of access points that was transmitted during the association process for selecting another access point **[Page 3, paragraph 0041]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Douglas in the handover system of Zaki in order to minimize disruptions associated with roaming **[See Douglas, Page 1, paragraph 0020]**.

7. Regarding claims 10, 11 and 13, Zaki further teaches ranking the candidate access points in the new association list based at least in part by access point load information **[Column 2, lines 37-40; i.e. The other system statistics may relate to the quality of service, such as delay bounds, bandwidth requirements (i.e. data rate), and frame error rate. In addition, an Access Point that cannot sustain any of the aforementioned QoS maybe construed as among other issues over-loaded]**.

8. Claims 5-6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,164,915 (Zaki) in view of U.S. Patent Application Publication Number 2005/0138178 (Astarabadi) and further in view U.S. Patent Publication Number 2005/0060319 (Douglas et al.)

9. As to claims 5 and 6, Zaki teaches a mobile terminal in a wireless area network, in which the mobile terminal is associated with a first access point in the network **[Abstract]**, and signal to noise ratio (SNR) of first RF signals received from the first access point is measured **[Figure 2, step S32, column 2, lines 34-36]**; wherein a SNR of RF signals received from a plurality of candidate access points in a roaming candidate list are measured and it is determined from measured SNRs of the candidate access points whether any of the measured SNRs exceeds a second threshold **[Column 3, lines 17-18; i.e. low SNR threshold]**, and if so, identifying those candidate access points in a new association list, the state machine transitioning from the first state to the second if the measured SNR of the first RF signals exceeds a first threshold **[Column 3, lines 20-26]**; a third state in which one of the candidate access points in the new association list is selected and an attempt is made to associate the mobile terminal to the selected candidate access point, the state machine transitioning from the second state to the third state if there is at least one candidate access point in the new association list **[Column 3, lines 50-64]**. And Astarabadi discloses a wireless mobility management system and method for identifying a group of wireless access points **[Abstract]**, and that prior to communicating data, wireless stations establish an association with their corresponding access points **[Page 3, paragraph 0033]**, and that a wireless station listens for beacons to identify APs within its communication range. After identifying AP, the wireless station and the AP may perform a mutual authentication by exchanging several management frames as part of the process. After successful authentication, the wireless station moves into the second state,

authenticated and unassociated. Moving from the second state to the third and final state **[i.e. fourth state]**, authenticated and associated, involves the wireless station sending an association request frame and the AP responding with an association response frame **[Page 3, paragraph 0034]**. But Zaki does not specifically disclose that receiving from the first access point the roaming candidate list identifying the plurality of candidate access points in the WLAN. Douglas teaches a for central planning and distributed control of client roaming and reassociation **[Title]**, whereby If an access point is not configured to support a client with a particular feature vector, it may give the client a roaming list of neighboring APs that are configured to support clients with that feature vector **[Page 1, paragraph 0018]**, and that when the client decides to roam, e.g., because of a weak signal or an overloaded cell, fails to associate with an access point or is disassociated, the client uses the roaming list of access points that was transmitted during the association process for selecting another access point **[Page 3, paragraph 0041]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Douglas in the handover system of Zaki in order to minimize disruptions associated with roaming **[See Douglas, Page 1, paragraph 0020]**.

10. Regarding claim 12, Zaki further teaches that the state wherein the new association list is ranked based at least in part by access point load information. **[Column 2, lines 37-40; i.e. The other system statistics may relate to the quality of service, such as delay bounds, bandwidth requirements (i.e. data rate), and frame**

error rate. In addition, an Access Point that cannot sustain any of the aforementioned QoS maybe construed as among other issues over-loaded].

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,164,915 (Zaki) in view U.S. Patent Publication Number 2005/0138178 (Astarabadi) and further in view of Alternative Wireless (Davi).

12. As to claim 9, Zaki teaches a wireless local area network (WLAN), the WLAN comprising: a plurality of sets of access points operable for communicating wirelessly with one or more remote client devices **[Figure 1, # 14_{1N} and #s 10_1 and 10_2]**. But Zaki fails to teach that each set of access points defines a cell having a predefined communication coverage area within the WLAN; a plurality of switches communicatively coupled to access points; and the access points in a first cell are operable for transmitting a roaming candidate list to a mobile device associated with one of the access points in the first cell, the list identifying one or more neighborhood access points. Astarabadi teaches that each access point defines a cell having a predefined communication coverage area within the WLAN **[Figure 5, AP1-AP4]**, and a plurality of switches coupled to the access points **[Figure 5, N1 and N2]**, and that the access points in a first cell are operable for transmitting a roaming candidate list to a mobile device associated with one of the access points in the first cell, the list identifying one or more neighborhood access points **[Figure 2, # 450, Figure 3, # 468; column 3, paragraph 0041]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Astarabadi in the handover system of Zaki in order to manage the network by dividing into cells, and

facilitate seamless handoffs. But neither Zaki nor Astarabadi disclose that the communication coverage area of each defined cell is less than about 1000 square feet. Davi discloses indoor wireless networks constitute picocells, and that picocell coverage is in the order of 150 to 1000 square feet **[Column 1, lines 5-12]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teachings of Davi into the combined system of Zaki and Astarabadi in order to implement the network in smaller area such as sporting arenas or lecture halls.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaak R. JAMA whose telephone number is (571)270-5887. The examiner can normally be reached on Monday-Thursday; 7:30 a.m-5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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